



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/701,409	10/31/2003	Mark Thomas Holtzapple	017575.0782 (TAMUS 1955	5883
5073	7590	06/05/2007	EXAMINER	
BAKER BOTTS L.L.P. 2001 ROSS AVENUE SUITE 600 DALLAS, TX 75201-2980			BEISNER, WILLIAM H	
			ART UNIT	PAPER NUMBER
			1744	
			NOTIFICATION DATE	DELIVERY MODE
			06/05/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mike.furr@bakerbotts.com
ptomail1@bakerbotts.com

Office Action Summary	Application No. 10/701,409	Applicant(s) HOLTZAPPLE ET AL.	
	Examiner William H. Beisner	Art Unit 1744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-86 is/are pending in the application.
- 4a) Of the above claim(s) 25-86 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>5/11/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I, Claims 1-24, in the reply filed on 3/12/2007 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Claims 25-86 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 3/12/2007.

Information Disclosure Statement

3. The information disclosure statement filed 5/11/2004 has been considered and made of record.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1744

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wildenauer (US 4,758,344) in view of Gauthier (US 4,521,517) and Taylor et al.(US 4,230,676).

The reference of Wildenauer discloses a system for processing biomass that includes a water-impermeable liner (21); a drain pipe (23); a biomass input device (7); a distribution pipe (10) elevated above the bottom (21) of the vessel (1); and a pump (22,24,15) operable to circulate water through the biomass pile by delivering water to the distribution pipe (10) and receiving water from the drain pipe (23) after it has traveled through the biomass pile.

Claim 1 differs by reciting that the drain pipe is not disposed within a gravel layer supported by the bottom liner.

The reference of Gauthier discloses that it is conventional in the art of processing a biomass to provide the drain pipes (27) at the bottom of the biomass with a liner (30), gravel (23) and a pipe (27) embedded in the gravel (23) (See column 1, line 55, to column 2, line 26).

In view of this teaching, it would have been obvious to one of ordinary skill in the art to construct the bottom of the vessel of the primary reference using a water-impermeable bottom liner, a gravel layer supported by the bottom liner and a drain pipe within the gravel layer for the known and expected result of providing an alternative means recognized in the art for aerating/draining a biomass pile while promoting proper drainage of the system as taught by the reference of Gauthier (See column 1, lines 59-62).

Claim 1 further differs by requiring that the system include a lime input device.

The reference of Taylor et al. discloses that it is conventional in the art of processing a biomass to employ the blower/injector conduits within the system to inject a variety of treatment fluids or materials, including a lime slurry (See column 4, lines 12-25).

In view of this teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the system of the primary reference with a lime input device for the known and expected result of providing an art recognized means for controlling the pH within the biomass and improving the composting conditions within the biomass treatment system.

With respect to claims 2 and 3, the system of the modified primary reference discussed above is capable of holding a lignocellulosic biomass as recited in claims 2 and 3.

Art Unit: 1744

With respect to claim 4, while the references are silent with respect to the thickness of the gravel layer, in the absence of a showing of criticality and/or unexpected results, it would have been obvious to one of ordinary skill in the art to determine the optimum thickness of the gravel layer based on the size of the biomass vessel while maintaining the draining efficiency of the system.

With respect to claims 5 and 6, the lime input device suggested by the reference of Gauthier would be structurally capable of being operated in the manner recited in claims 5 and 6.

With respect to claim 7, the reference of Gauthier also discloses that seed microorganism (73) can be injected into the system.

In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide the system of the modified primary reference with an inoculum input device as suggested by Gauthier for the known and expected result of providing seed microorganisms to the biomass pile.

With respect to claim 9, the reference of Wildenauer discloses the use of an air blower (12) and an air distribution pipe (13) to deliver air to the biomass pile.

8. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wildenauer (US 4,758,344) in view of Gauthier (US 4,521,517) and Taylor et al.(US 4,230,676) taken further in view of Khan (US 4,962,034).

The combination of the references of Wildenauer, Gauthier and Taylor et al. has been discussed above.

Art Unit: 1744

Claim 8 differs by reciting that the device further includes a heat exchanger coupled to the distribution pipe.

The reference of Khan discloses that it is known in the art of processing piles of biomass to provide the distribution pipe (28) with a heat exchanger (30) so as to control the temperature of the biomass pile (See column 2, lines 37-40).

In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide the system of the modified primary reference with a heat exchangers for the known and expected result of providing a means recognized in the art for controlling the temperature of the biomass pile and optimize the microbial reaction in the pipe.

9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wildenauer (US 4,758,344) in view of Gauthier (US 4,521,517) and Taylor et al.(US 4,230,676) taken further in view of Young et al.(US 5,5935) and Lynn (US 3,973,043).

The combination of the references of Wildenauer, Gauthier and Taylor et al. has been discussed above.

Claim 10 differs by reciting that the system includes a gas scrubber for contacting the air delivered to the biomass pile with a lime water slurry so as to remove carbon dioxide from the air.

The reference of Young et al. discloses that it is known in the art of biomass processing to control the carbon dioxide content of the aeration gas using a carbon dioxide scrubber (See column 5, line 56, to column 6, line 10).

The reference of Lynn discloses that it is known in the scrubbing art to employ lime water to remove carbon dioxide from a gas stream (See column 6, lines 5-16).

In view of these teachings, it would have been obvious to one of ordinary skill in the art to provide the system of the modified primary reference with a carbon dioxide scrubbing device for the known and expected result of controlling the carbon dioxide content of the aeration gas. The use of a lime-slurry would have been obvious for the known and expected results of employing an art recognized means for scrubbing carbon dioxide from a gas stream.

10. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wildenauer (US 4,758,344) in view of Gauthier (US 4,521,517) and Taylor et al.(US 4,230,676) taken further in view of Khoroshavin et al.(US 4,317,670).

The combination of the references of Wildenauer, Gauthier and Taylor et al. has been discussed above.

Claim 11 differs by reciting that the system includes a calcium carbonate input device.

The reference of Khoroshavin discloses that it is conventional in the art of processing a biomass with microorganisms to employ calcium carbonate as a neutralizing agent (See column 3, lines 51-67).

In view of this teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the system of the primary reference with a calcium carbonate input device for the known and expected result of providing an art recognized means for controlling the pH within the biomass and improving the composting conditions within the biomass treatment system.

11. Claims 12-14, 19, 20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wildenauer (US 4,758,344) in view of Gauthier (US 4,521,517) and Taylor et al.(US 4,230,676) taken further in view of Furuta (JP 08-245285).

The combination of the references of Wildenauer, Gauthier and Taylor et al. has been discussed above.

Claim 12 differs by reciting that the system includes a geomembrane and grid-like lattice to support the membrane.

The reference of Furuta discloses that it is known in the art of processing a biomass to employ a membrane cover (geomembrane (7)) and grid-like lattice (311) to support the membrane.

In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide the system of the modified primary reference with a roof structure as taught by the reference of Furuta for the known and expected result of providing an alternative means recognized in the art to achieve the same result, provide a roof for the biomass pile during processing.

With respect to the use of a plurality of distribution pipes and pumps, in the absence of a showing of criticality and/or unexpected results, it would have been obvious to one of ordinary skill in the art to provide a plurality of pipes and pumps based merely on considerations such as the size of the pile to be processed while maintaining the efficiency of the processing conditions.

Also, the reference of Wildenauer discloses the use of a conveyor belt (7) for introducing the biomass into the enclosure (1).

With respect to claim 13, the system of the modified primary reference discussed above is capable of holding a lignocellulosic biomass as recited in claim 13.

With respect to claim 14, while the reference of Furuta is silent with respect to the structure of the support lattice, the use of I-beams is notoriously well known as a frame support member and its use in the system of the modified primary reference would have been obvious for the known and expected result of providing a well known construction element that is capable of providing a frame for supporting a roof structure.

With respect to claim 19, the lime input device suggested by the reference of Gauthier would be structurally capable of being operated in the manner recited in claim 19.

With respect to claim 20, the reference of Gauthier also discloses that seed microorganism (73) can be injected into the system.

In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide the system of the modified primary reference with an inoculum input device as suggested by Gauthier for the known and expected result of providing seed microorganisms to the biomass pile.

With respect to claim 22, the reference of Wildenauer discloses the use of an air blower (12) and an air distribution pipe (13) to deliver air to the biomass pile.

12. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wildenauer (US 4,758,344) in view of Gauthier (US 4,521,517), Taylor et al.(US 4,230,676) and Furuta (JP 08-245285) taken further in view of Still (DE 2057413).

Art Unit: 1744

The combination of the references of Wildenauer, Gauthier, Taylor et al. and Furuta has been discussed above.

Claim 15 differs by reciting that the cover membrane includes a foam layer.

The reference of Still discloses that it is conventional in the art to insulate the enclosure for a pile of biomass that is processed (See the English language abstract).

In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide the enclosure of the modified primary reference with an insulation layer, such as foam, for the known and expected result of ensuing that proper temperatures are maintained within the biomass processing enclosure.

13. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wildenauer (US 4,758,344) in view of Gauthier (US 4,521,517), Taylor et al.(US 4,230,676) and Furuta (JP 08-245285) taken further in view of Smit (EP 0 673 901).

The combination of the references of Wildenauer, Gauthier, Taylor et al. and Furuta has been discussed above.

Claims 16-18 differ by reciting that the system includes a sugar extraction device that includes a screw conveyor and weir.

The reference of Smit discloses that it is conventional in the art of processing biomass to provide a treatment system with a screw conveyor and weir structure (3) so as to extract water from the material to be processed (See column 3, lines 22-32)

In view of this teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the system of the modified primary reference with an

extraction device as suggested by the reference of Smit for the known and expected result of ensuring that the material to be processed is provided with the correct moisture content prior to processing the biomass material.

14. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wildenauer (US 4,758,344) in view of Gauthier (US 4,521,517), Taylor et al.(US 4,230,676) and Furuta (JP 08-245285) taken further in view of Khan (US 4,962,034).

The combination of the references of Wildenauer, Gauthier, Taylor et al. and Furuta has been discussed above.

Claim 21 differs by reciting that the device further includes a heat exchanger coupled to the distribution pipe.

The reference of Khan discloses that it is known in the art of processing piles of biomass to provide the distribution pipe (28) with a heat exchanger (30) so as to control the temperature of the biomass pile (See column 2, lines 37-40).

In view of this teaching, it would have been obvious to one of ordinary skill in the art to provide the system of the modified primary reference with a heat exchangers for the known and expected result of providing a means recognized in the art for controlling the temperature of the biomass pile and optimize the microbial reaction in the pipe.

15. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wildenauer (US 4,758,344) in view of Gauthier (US 4,521,517), Taylor et al.(US 4,230,676) and Furuta (JP 08-245285) taken further in view of Young et al.(US 5,5935) and Lynn (US 3,973,043).

The combination of the references of Wildenauer, Gauthier, Taylor et al. and Furuta has been discussed above.

Claim 23 differs by reciting that the system includes a gas scrubber for contacting the air delivered to the biomass pile with a lime water slurry so as to remove carbon dioxide from the air.

The reference of Young et al. discloses that it is known in the art of biomass processing to control the carbon dioxide content of the aeration gas using a carbon dioxide scrubber (See column 5, line 56, to column 6, line 10).

The reference of Lynn discloses that it is known in the scrubbing art to employ lime water to remove carbon dioxide from a gas stream (See column 6, lines 5-16).

In view of these teachings, it would have been obvious to one of ordinary skill in the art to provide the system of the modified primary reference with a carbon dioxide scrubbing device for the known and expected result of controlling the carbon dioxide content of the aeration gas. The use of a lime-slurry would have been obvious for the known and expected results of employing an art recognized means for scrubbing carbon dioxide from a gas stream.

16. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wildenauer (US 4,758,344) in view of Gauthier (US 4,521,517), Taylor et al.(US 4,230,676) and Furuta (JP 08-245285) taken further in view of Khoroshavin et al.(US 4,317,670).

The combination of the references of Wildenauer, Gauthier, Taylor et al. and Furuta has been discussed above.

Claim 24 differs by reciting that the system includes a calcium carbonate input device.

Art Unit: 1744

The reference of Khoroshavin discloses that it is conventional in the art of processing a biomass with microorganisms to employ calcium carbonate as a neutralizing agent (See column 3, lines 51-67).

In view of this teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the system of the primary reference with a calcium carbonate input device for the known and expected result of providing an art recognized means for controlling the pH within the biomass and improving the composting conditions within the biomass treatment system.

Double Patenting

17. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

18. Claims 1-24 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-24 of copending Application No. 10/698,199. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.


Conclusion

Art Unit: 1744

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William H. Beisner whose telephone number is 571-272-1269. The examiner can normally be reached on Tues. to Fri. and alt. Mon. from 6:15am to 3:45pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gladys J. Corcoran can be reached on 571-272-1214. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


William H. Beisner
Primary Examiner
Art Unit 1744

WHB